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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/574,950	04/07/2006	Mutsuhiko Oishi	L8612.06110	7312

52989 7590 10/15/2008

DICKINSON WRIGHT PLLC
1901 L STREET NW
SUITE 800
WASHINGTON, DC 20036

EXAMINER	
NGUYEN, THUAN V	

ART UNIT	PAPER NUMBER
4145	

MAIL DATE	DELIVERY MODE
10/15/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/574,950	OISHI ET AL.	
	Examiner	Art Unit	
	THUAN NGUYEN	4145	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *07 April 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-29* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-5,7-12,15-26,28 and 29* is/are rejected.

7)☒ Claim(s) *6,13,14 and 27* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *04/07/2006*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

1. Claim 27 is objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent claim should refer to other claims in the alternative only, while claim 27 refers to both claim 18 and claim 20. See MPEP § 608.01(n). Accordingly, the claim has not been further treated on the merits.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 7, 9, 10, 16, 17, 22 and 29 are rejected under 35 U.S.C. 102(b) as being anticipated by Williamson (US Patent Number 5,991,269).

3. As per claim 1, Williamson teaches *a communication apparatus* (Williamson, figure 2) *for executing a wired communication* (Williamson, figure 2, elements 42 and 44) *using a plurality of sub carriers* (Williamson, abstract, line 3) *comprising:*

a transmission signal generator for generating a transmission signal (Williamson, figure 2, element 78 generates signal for transmission as explained in column 6, lines 19-21);

a transmission signal controller for controlling a transmission power of the transmission signal (Williamson, figure 2, element 71) *generated by the transmission signal generator* (Williamson, figure 2, element 78 generates signal for transmission as explained in column 6, lines 19-21) *based on a radiation power in a transmission line in correspondence with a frequency of the sub carrier* (Williamson, column 4, lines 13-16 teaches that the controller is based on the balance for a particular carrier frequency. In addition, column 5, lines 60-62 teaches that the balance represents energy radiation of each sub-carrier in the transmission line. Thus effectively the controller is based on radiation power)*; and*

a transmitter for transmitting the transmission signal (Williamson, figure 2, elements 40 and 46 are modems, which transmit signals) *the transmission power of which is controlled by the transmission signal controller via the transmission line* (Williamson, column 4, lines 13-14 teaches that the controller may de-select certain channels, i.e. reduce the transmission power on that channel to zero (see also column 4, line 31), or as taught in column 9 line 9, increase the transmission power level for some other sub-carriers.)

4. As per claim 7, Williamson teaches claim 1. Williamson also teaches *the transmission signal controller selects a modulation system of the sub carrier based on a indicating the radiation power from the transmission line* (Williamson, figure 2, element 71 shows the controller which controls data modulation as taught in column 6, line 10. In addition, column 4, line 12 teaches that the controller is responsive to the channel analyzer, which provides balance assessment of each sub-channel to the controller as taught in column 6, lines 50-52.)

5. As per claim 9, Williamson teaches claim 1. Williamson also teaches *the transmission line utilizes a pair of lines* (Williamson, figure 2, elements 42 and 44)*, and the transmission signal generator generates the transmission signals transmitted to the pair of lines for each sub carrier and each transmission line based on a transmission data and the radiation power* (Williamson, figure 2 shows that the controller 71 controls the generation of transmission signals in elements 74 and 78, based on the transmission data (DATA IN) and balance assessment from the sub-channel analyzer 102 (column 6, lines 50-51) which indicates the radiation power (column 5, lines 60-62.))

6. As per claim 10, Williamson teaches claim 9. Williamson also teaches *the transmission signal generator generates a differential component of the transmission signal based on the transmission data and generates a common component of the transmission signal based on the radiation power* (Williamson, figure 2 shows the

differential mode component and the common mode component, where the differential mode is related to data transmission (column 2, lines 5-9), and the common mode is related to radiation (column 2, lines 20-25)).

7. As per claim 16, Williamson teaches claim 1. Williamson also teaches *the wired transmission utilizes a pair of lines* (Williamson, figure 2, elements 42 and 44), *further comprising a radiation power detector for indirectly detecting a signal of the radiation power by utilizing signals transmitted through the pair of lines* (Williamson, figure 2, element 102 is a sub-channel analyzer which performs the steps in figure 3, elements 132-138, which uses test signals transmitted through the pair of lines to calculate the balance of a sub-channel, which is an indirect representation of the radiation power as taught in column 5, lines 60-62.)

8. As per claim 17, Williamson teaches claim 16. Williamson also teaches *the radiation power detector detects an unbalance component of the signals transmitted through the pair of lines* (Williamson, figure 2, element 102 is a sub-channel analyzer which performs the steps in figure 3, elements 132-138 to calculate the balance of a sub-channel, which represents the radiation power (column 5, lines 60-62) caused by the unbalance component of the signal (column 2, lines 11-20 teaches radiation is caused by mismatches, i.e. unbalance, in the wireline transmission system.))

9. As per claim 22, Williamson teaches claim 1. Williamson also teaches *the radiation power signal indicating the radiation power is acquired only once in starting communication* (Williamson, column 8, lines 9-10 teaches balance assessment on a per-call basis, i.e. the balance which represents the radiation power of a subchannel is acquired only once at the start of the communication session.)

10. As per claim 29, Williamson teaches *a method for executing a wired transmission* (Williamson, column 3, lines 37-39) *by using a plurality of sub carriers* (Williamson, column 3, lines 40-41) *comprising:*

generating a transmission signal (Williamson, figure 2, element 78 generates signal for transmission as explained in column 6, lines 19-21);

controlling a transmission power of the generated transmission signal (Williamson, figure 2, element 71) *based on a radiation power in a transmission line in correspondence with a frequency of the sub carrier* (Williamson, column 4, lines 13-16 teaches that the controller is based on the balance for a particular carrier frequency. In addition, column 5, lines 60-62 teaches that the balance represents energy radiation of each sub-carrier in the transmission line. Thus effectively the controller is based on radiation power)*; and*

transmitting a transmission signal (Williamson, figure 2, elements 40 and 46 are modems, which transmit signals) *the transmission power of which is controlled via the transmission line* (Williamson, column 4, lines 13-14 teaches that the controller may de-select certain channels, i.e. reduce the transmission power on that channel to zero (see also column 4, line 31), or as taught in column 9 line 9, increase the transmission power level for some other sub-carriers.)

Claim Rejections - 35 USC § 103

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

12. Claims 2-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Williamson (US Patent Number 5,991,269) in view of Sohner (US Patent Number 5,018,165).

13. As per claim 2, Williamson teaches claim 1. Williamson does not teach *the transmission signal controller reduces the transmission power of the sub carrier of the frequency in which the radiation power exceeds a predetermined value*. However Sohner teaches *the transmission signal controller reduces the transmission power of the sub carrier of the frequency in which the radiation power exceeds a predetermined*

value (Sohner, column 7, lines 2-7 teaches measuring the radiation field strength of a transmission line and adjusting the signal power level to stay within a radiation emission limit specified by the FCC in Table 4. Sohner, column 3, lines 4-6 teaches reducing the transmission power to a pre-selected level to stay within FCC radiation emission limit). Thus it would have been obvious for one of ordinary skill in the art at the time the invention was made to implement *the transmission signal controller reduces the transmission power of the sub carrier of the frequency in which the radiation power exceeds a predetermined value* of Sohner into Williamson, since Williamson suggests controlling the transmission power of a subcarrier based on radiation power (something broad) in general, and Sohner suggests the beneficial use of reducing the transmission power of the subcarrier when the radiation power exceeds a predetermined value such as to adjust the transmission power more efficiently so that the system should comply to FCC requirements in the analogous art of wireline communications.

14. As per claim 3, Williamson and Sohner teach claim 2. Williamson also teaches *the transmission signal controller nullifies the transmission power of the sub carrier of the frequency in which the radiation power exceeds the predetermined value* (Williamson, column 3, lines 60-63 teaches of de-selecting, i.e. nullifying, those channels having a balance value below a predetermined threshold. As taught in column 5, lines 5-8, poor balance means high radiation power. Thus Williamson, column 3, lines 60-63, effectively teaches nullifying those channels in which the radiation power exceeds a predetermined threshold.)

15. As per claim 4, Williamson and Sohner teach claim 2. Sohner also teaches *the transmission signal controller reduces the transmission power of the sub carrier of the frequency in which the radiation power exceeds the predetermined value until the radiation power becomes equal to or lower than the predetermined value* (Sohner, column 7, lines 2-7 teaches measuring the radiation field strength of a transmission line and adjusting the signal power level to stay within a radiation emission limit specified by the FCC in Table 4. Sohner, column 3, lines 4-6 teaches reducing the transmission power to a pre-selected level to stay within FCC radiation emission limit, i.e. until the radiation power becomes equal to or lower than the pre-selected level.)

16. As per claim 5, Williamson and Sohner teach claim 2. Sohner also teaches *the transmission signal controller increases the transmission power of the sub carrier of the frequency in which the radiation power is equal to or lower than the predetermined value* (Sohner, column 8, lines 9-12, teaches boosting the transmission power of the signal to the maximum without exceeding FCC limits on radiation emission in Table 4.)

17. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Williamson (US Patent Number 5,991,269) and Sohner (US Patent Number 5,018,165) in view of Quigley (US 20010055319A1).

18. As per claim 8, Williamson teaches claim 7. Williamson and Sohner teach that when *the radiation power exceeds the predetermined value* then the transmission power for that sub-carrier will be reduced (see claim 2), which means for the same noise level the signal-to-noise for that sub-channel will be reduced and the sub-channel quality will be reduced accordingly. Williamson and Sohner do not teach *the transmission signal controller changes the modulation system of the sub carrier of the frequency… to a modulation system having a relatively low communication rate*. However Quigley teaches *the transmission signal controller changes the modulation system of the sub carrier of the frequency… to a modulation system having a relatively low communication rate* (Quigley, paragraph [0313] teaches a cable transmission system which has two different modulation schemes, one with higher data rate when the channel quality is higher, the other with lower data rate when the channel quality is lower.) Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to implement *the transmission signal controller changes the modulation system of the sub carrier of the frequency… to a modulation system having a relatively low communication rate* of Quigley into Williamson and Sohner, since Williamson and Sohner suggest changing the modulation system according to the radiation power which consequently affects the transmission power and the channel quality (something broad) in general, and Quigley suggests the beneficial use of using a high data rate modulation scheme when the channel quality is high and a low data rate modulation scheme when the channel quality is low such as to transmit data more efficiently in the analogous art of wireline communications.

19. Claims 11-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Williamson (US Patent Number 5,991,269) in view of Ikami (US 2003/0206160A1).

20. As per claim 11, Williamson teaches claim 10. Williamson does not teach *the common component is generated such that the radiation power is reduced*. However Ikami teaches *the common component is generated such that the radiation power is reduced* (Ikami, paragraph [0035], lines 16-28, teaches of EMI radiation suppression by introducing a second common mode component of the same value and opposite direction.) Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to implement *the common component is generated such that the radiation power is reduced* of Ikami into Williamson, since Williamson suggests a common mode component (something broad) in general, and Ikami suggests the beneficial use of a common mode component of equal value and opposite direction such as to reduce radiation in the analogous art of EMI suppression.

21. As per claim 12, Williamson and Ikami teach claim 11. Williamson also teaches *the radiation power includes a radiation power component when a predetermined test signal is transmitted to the transmission line as the differential signal and a radiation power component when the predetermined test signal is transmitted to the transmission line as a common mode signal* (Williamson, column 6, lines 62-63 teaches a training sequence which is a predetermined pattern of data words or bits. This training

sequence is transmitted in both differential mode and common mode, and the quantitative assessments for both modes are used to calculate balance (Williamson, column 7, lines 15-20), which represents the radiation power component (Williamson, column 5, lines 60-62)).

22. Claims 15, 18-20 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Williamson (US Patent Number 5,991,269) in view of Cern (US 2004/0109499 A1).

23. As per claim 15, Williamson teaches claim 1. Williamson does not teach *a radiation power detector for directly detecting the radiation power*. However Cern teaches *a radiation power detector for directly detecting the radiation power* (Cern, figure 3, element 315, as explained in paragraph [0026], senses radiation field strength of transmission line 320 and sends a feedback to element 310 to control signal transmission power.) Thus it would have been obvious for one of ordinary skill in the art at the time the invention was made to implement *a radiation power detector for directly detecting the radiation power* of Cern into Williamson, since Williamson suggests controlling transmission power of a subchannel to reduce radiation (something broad) in general and Cern suggests the beneficial use of directly detecting radiation power such as to track radiation level more closely and adjust transmission power to reduce radiation more efficiently in the analogous art of wireline communications.

24. As per claim 18, Williamson and Cern teach claim 15. Cern also teaches *a radiation power transmitter for transmitting the radiation power signal indicating the radiation power detected by the radiation power detector to other communication apparatus* (Cern, figure 3, element 315, as explained in paragraph [0026], sends the radiation field strength of transmission line 320 to modem 300.)

25. As per claim 19, Williamson and Cern teach claim 15. Cern also teaches *a power control signal transmitter for transmitting a power control signal calculated based on the detected radiation power for controlling the transmission power of the sub carrier to other communication apparatus* (Cern, figure 3 shows power control system sends control signal to power amplifier 115 based on the detected radiation power received from sensor 315.)

26. As per claim 20, Williamson teaches claim 1. Williamson does not teach *a radiation power receiver for receiving a radiation power signal indicating the radiation power from outside*. However, Cern teaches *a radiation power receiver for receiving a radiation power signal indicating the radiation power from outside* (Cern, figure 3, element 325 is an antenna to receive radiation power signal indicating the radiation power from outside.) Thus it would have been obvious for one of ordinary skill in the art at the time the invention was made to implement *a radiation power receiver for receiving a radiation power signal indicating the radiation power from outside* of Cern into Williamson, since Williamson suggests controlling transmission power of a subchannel

to reduce radiation (something broad) in general and Cern suggests the beneficial use of a radiation power receiver to directly detect radiation power such as to track radiation level more closely and adjust transmission power to reduce radiation more efficiently in the analogous art of wireline communications.

27. As per claim 28, Williamson and Cern teach claim 19. Cern also teaches *a communication system comprising a plurality of communication apparatus connected via a wired transmission line* (Cern, figure 3)*, wherein one communication apparatus out of the plurality of communication apparatus is the communication apparatus according to claim 19 for transmitting the power control signal to all of remaining communication apparatus out of the plurality of communication apparatus* (Cern, figure 3, element 310 shows a power control system sending the control signal to power amplifier 115)*; and wherein the remaining communication apparatus control the transmission power of the sub carrier based on the transmission power control signal received from the one communication apparatus* (Cern, figure 3, element 115 shows a power amplifier receiving the control signal from power control system 310).

28. Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Williamson (US Patent Number 5,991,269) in view of Abraham (US Patent Number 6,407,987 B1).

29. As per claim 21, Williamson teaches claim 1. Williamson also teaches *utilizes the radiation power signal… for controlling the transmission signal* (Williamson, column 4, lines 13-16 teaches that the controller (Williamson, figure 2, element 71) is based on the balance for a particular carrier frequency. In addition, column 5, lines 60-62 teaches that the balance represents energy radiation of each sub-carrier in the transmission line. Thus effectively the controller is based on radiation power). Williamson does not teach *the transmission signal controller intermittently makes the transmission powers of all of the sub carriers constant*. However Abraham teaches *the transmission signal controller intermittently makes the transmission powers of all of the sub carriers constant* (Abraham, column 8, lines 37-39, teaches that radiation emission level is typically measured at the same transmission level. It follows that the transmission signal controller makes the transmission power constant whenever a measurement occurs). Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to implement *the transmission signal controller intermittently makes the transmission powers of all of the sub carriers constant* of Abraham into Williamson, since Williamson suggests measuring the radiation emission level (something broad) in general and Abraham suggests the beneficial use of measuring radiation at a constant transmission power level such as to obtain more accurate radiation measurement to reduce radiation more effectively in the analogous art of wireline communications.

30. Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Williamson (US Patent Number 5,991,269) in view of Barlev (US Patent Number 7,133,441 B1).

31. As per claim 23, Williamson teaches claim 1. Williamson does not teach *the radiation power signal indicating the radiation power is acquired periodically*. However Barlev teaches *the radiation power signal indicating the radiation power is acquired periodically* (Barlev, column 26, lines 48-56, teaches a transmission system of copper wires where the radiation power is measured periodically and fed back to control the signal power to ensure compliance to FCC regulations.) Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to implement *the radiation power signal indicating the radiation power is acquired periodically* of Barlev into Williamson, since Williamson suggests acquiring radiation power assessment to control transmission power (something broad) in general and Barlev suggests the beneficial use of periodically measuring radiation power such as to keep track of the radiation power more closely and adjust the transmission power to reduce radiation more efficiently in the analogous art of wireline communications.

32. Claims 24-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Williamson (US Patent Number 5,991,269) in view of Kodama (US 2003/0156014 A1).

33. As per claim 24, Williamson teaches claim 1. Williamson does not teach *the transmission line is a power line*. However Kodama teaches *the transmission line is a power line* (Kodama, abstract). Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to implement *the transmission line is a power line* of Kodama into Williamson, since Williamson suggests a communication apparatus that transmits data over a transmission line (something broad) in general, and Kodama suggests the beneficial use of a power line for the transmission line such as to take advantage of an existing infrastructure to transmit data in the analogous art of telecommunications.

34. As per claim 25, Williamson teaches claim 1. Williamson does not teach *the wired transmission is a transmission of an OFDM system*. However Kodama teaches *the wired transmission is a transmission of an OFDM system* (Kodama, paragraph [0014]). Thus it would have been obvious to one of ordinary skill at the time the invention was made to implement *the wired transmission is a transmission of an OFDM system* of Kodama into Williamson, since Williamson suggests a multi-carrier system (something broad) in general and Kodama suggests the beneficial use of OFDM such as to transmit data more efficiently in the analogous art of telecommunications.

35. As per claim 26, Williamson and Kodama teach claim 25. Kodama also teaches *the wired transmission is the transmission of the OFDM system* (Kodama, paragraph

[0014]) *using a wavelet transformation* (Kodama, figure 3, elements 103 and 115).

Allowable Subject Matter

36. Claims 6, 13 and 14 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to THUAN NGUYEN whose telephone number is (571)270-7189. The examiner can normally be reached on 7:30 AM to 5:00 PM, Monday - Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Pankaj Kumar can be reached on 571-272-3011. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

T.N.
/Pankaj Kumar/
Supervisory Patent Examiner, Art Unit 4145